



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,819	02/05/2004	Robert Lin	80042	5975

7590 09/18/2006

Eastman Chemical Company  
P.O. Box 511  
Kingport, TN 37662-5075

EXAMINER

OH, TAYLOR V

ART UNIT PAPER NUMBER

1625

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/772,819

Applicant(s)

LIN ET AL.

Examiner

Taylor Victor Oh

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 11/05&11/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

Art Unit: 1625

The Status of Claims:

Claims 1-44 are pending.

Claims 1-44 have been rejected.

DETAILED ACTION

1. Claims 1-44 are under consideration in this Office Action.

Priority

2. None.

Drawings

3. The drawings filed on 2/05/04 are accepted by the examiner.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-11,13-21,23-28,30-35, and 37-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1,11,21,28, and 35, the phrase " a low pressure stream" is recited. This expression is vague and indefinite because the specification does not elaborate what

Art Unit: 1625

the pressure range of the low pressure stream can be for the claimed process.

Therefore, an appropriate correction is required.

***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1625

Claims 1-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graham et al (WO 02/06201A1).

Graham et al discloses the process of preparing an aromatic carboxylic acid in the presence of a catalyst and one or more precursors of the aromatic carboxylic acid with an oxidant in an aqueous solvent comprising water under supercritical conditions (see abstract page ); during the process, the heat-accepting fluid , such as water, can be used to raise high pressure steam which can be superheated by external heat and fed to the a high efficiency condensing steam turbine to recover power(see page 7 ,lines 16-24).

Furthermore, the enthalpy of reaction can be used to recover power via a suitable power recovery system such as a turbine; for example, the heating accepting water fluid can be raised high pressure saturated steam at a temperature and a pressure of the order of 300° C/100 bara (see page 14 ,lines 16-19).

The energy recovery system 58 is also supplied with steam flashed from one or more stages of the crystallisation train. This is depicted by line 88. This steam may for example be used to preheat the water supplied via line 82 to the heat transfer conduit(s) 80. Condensate resulting from processing of the steam feeds supplied to the energy recovery system 58 may be passed via line 90 to the product recovery section for use for example in washing the terephthalic acid filter cake produced in the solids-liquid separation. A water purge 92 may be taken from line 90 if desired, with the advantage that a purge taken at this point will be less contaminated than a purge taken from the mother liquor via line 78.

In the energy recovery system 58, various heat recovery processes may be carried out in order to render the process energy efficient. For instance, the high pressure steam raised following passage of water through the conduit(s) 80 may be superheated in a furnace supplied with combustible fuel and the superheated steam may then be passed through one or more steam condensing turbine stages to recover power. Part of the high pressure steam may be diverted for use in preheating the reactants (heat exchangers 40, 40A and 40B) or for preheating stream 82 where this is necessary to effect a system of high thermal efficiency.

The condensed water recovered from the turbine stages and from the heat exchangers 40, 40A and 40B may then be passed through a train of heating stages in order to preheat the water for recirculation to the reactor 46 via heat exchanger 52 thus forming a closed loop with make-up water being added as needed. The heating stages typically comprise a cascade of heat exchangers by means of which the recirculating water flow returning to the reactor 46 is progressively raised in temperature. In some heating stages, the heat-donating fluid may be constituted by the flash steam derived at different pressures and temperatures from different stages of the crystallisation train. In other heating stages, the heat-donating fluid may be combustion gases rising in the furnace stack associated with the furnace used to superheat the high pressure steam supplied via line 84.

The instant invention, however, differs from the prior art in that the low pressure steam has a pressure from 0 to 40 psig; the claimed steam ejector has a compression ratio of 1.2 to 2.0.

Art Unit: 1625

With respect to the low pressure steam having a pressure from 0 to 40 psig, the prior art does teach that the filter cake of terephthalic acid may be transferred to a low pressure zone (e.g. atmospheric pressure) for drying. (see page 17, lines 15-17).

Therefore, it would be possible to have the low pressure steam with a pressure from 0 to 40 psig in the prior art process.

Regarding the claimed steam ejector having the compression ratio of 1.2 to 2.0, the prior art is silent. However, the limitation of a process with respect to pH, time, ratio, and speed does not impart patentability to a process when such values are those which would be determined by one of ordinary skill in the art in achieving optimum operation of the process. The compression ratio is well-understood by those of ordinary skill in the art to be a result-effective variable, especially when attempting to control selectivity of a process.


Graham et al discloses expressly the energy recovery system in the process of preparing an aromatic carboxylic acid in the presence of a catalyst and one or more precursors of the aromatic carboxylic acid with an oxidant in an aqueous solvent comprising water under supercritical conditions (see abstract page ). In achieving optimum operation of the energy recovery process, it would have been obvious to the skilled artisan in the art to be motivated to control the claimed compression ratio so as to maximize the claimed process. This is because the skilled artisan in the art would expect such a modification to be feasible and successful as shown in the prior art.

Art Unit: 1625

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas McKenzie can be reached on 571-272-0670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Taylor Victor Oh, MSD,LAC  
Primary Examiner  
Art Unit 1625

9/12/06

\*\*\*